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Abstract

The IBEX Mission and Neutral Atom Imaging of the Polar Heliosphere

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The Interstellar Boundary Explorer (IBEX), scheduled for launch in 2008, is designed to make the first global images of the heliosheath beyond the heliospheric termination shock, using energetic neutral atoms (ENAs) generated by charge exchange between downstream solar wind protons and interstellar hydrogen atoms. Recent in situ measurements of the heliosheath by the Voyager missions confirm N-S asymmetry in the shape of our heliosphere but leave many unanswered science questions about the interaction between the solar system and the local interstellar medium. The IBEX spacecraft, in a highly elliptical orbit around Earth, will utilize ENA imaging techniques previously developed to image the magnetosphere to generate global images of the heliosheath. In this talk we overview the capabilities of IBEX, present simulated ENA flux maps calculated from MHD models of the heliosheath, and discuss heliospheric polar science opportunities.